

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 62-171999

(43)Date of publication of application : 28.07.1987

(51)Int.Cl.

C30B 29/40

C30B 23/08

C30B 25/02

(21)Application number : 61-013751

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(22)Date of filing : 27.01.1986

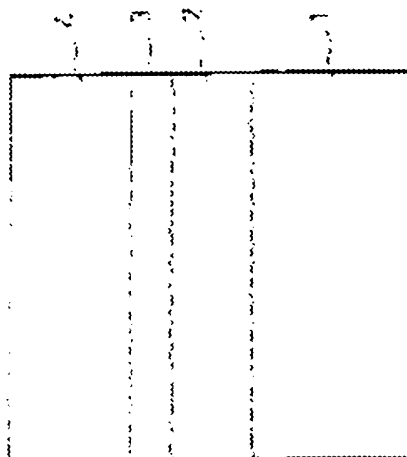
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(54) EPITAXY OF III-V COMPOUND SEMICONDUCTOR

(57)Abstract:

PURPOSE: A group-IV elementary semiconductor layer of the same as or different from the base semiconductor is allowed to grow epitaxially on the base surface, then a single atomic layer of a group V element is formed thereon, and a III-V compound semiconductor from the group V element used is allowed to grow thereon epitaxially whereby a high-purity semiconductor layer of III-V compound is formed.

CONSTITUTION: A Si crystal of <100> or <111> face orientation is used as a IV-group semiconductor base, and a group-IV semiconductor layer 2 the same as or different from the base such as Si or Ge is allowed to grow epitaxially so that the thickness of the layer becomes integral times that corresponding to double atom layer of the semiconductor. Then, a single atom layer 3 of group-V element such as P is formed by adsorption on its surface, further, a semiconductor layer 4 of III-V compound from the group V element used such as GaP is formed epitaxially thereon. The process enables the economical mass-production of high-quality III-V compound semiconductor layers free from antiphase boundary.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]